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Most of the substances named above are found in the analytical scheme proposed and by going through the work the student really becomes acquainted with them. If a typical plant is selected he may even learn the quantity in which some of the more important constituents occur. Something in the way of comparison is even possible. Different members of the class may take different parts of the plant at the same age or the same part at different ages and compare them as to amount of ash, water or some other constituent. Sach's discovery that "squash seeds, which, when ripe, contain no starch, sugar or dextrine, but are very rich in oil (50%), and albuminoids (40%), suffer by germination such chemical change that the oil rapidly diminishes in quantity, while at the same time starch, and in some cases sugar, is formed," suggests a great variety of more elaborate and by no means impracticable lines of comparative study on the part of botanical students. So much for micro-chemical comparisons. Micro-chemical comparisons as to the physical condition and position of the various substances in the specimens upon which the students are working will of course be made.

Even if desirable in itself two objections will be made to the course proposed—time required for the work outlined and its expense. It is thought that the large number of solvents used and the fact that they can be employed cold and that the drying and evaporating can be done at ordinary temperature will greatly facilitate matters. Of course some pieces of apparatus must be purchased, such as a good balance, polariscope and spectroscope that can be attached to the microscope, platinum dish, Liebig's condenser for getting distilled water, chemical thermometer, burrette, porcelain evaporating dish and glass stoppered bottle for each student, and test tubes, but tripods, forceps, alcohol lamps, desiccater, drying oven, etc., can be made by the students. The main reagents will be needed in some quantity, but one set of reagent bottles will hold the other substances needed.

BRIEFER ARTICLES.

Calochortus Obispoensis, n. sp.—Corm fibrous-coated, deep seated, one-half to one inch thick: stem simple or branched, one to two feet high, flexuous, leafy, often bulbiferous below: upper leaves reduced to subulate bracts, all convolute and long attenuate: flowers solitary or numerous; peduncles one to two inches long: sepals about an inch long, rotate-spreading, lanceolate, acuminate, soon convolute, veined within with brown: petals one-half to two thirds as long, rotate or recurved in anthesis, oblong, truncate, often bifid and the lobes connivent backwards, lemon yellow becoming orange at base, brownish-red above beset more or less throughout with long hairs (3–4 lines), the lower yellow or deep orange, the upper dark reddish brown ; gland round-elliptical, naked but enclosed by a fimbriate ring of long, erect, converging, orange colored hairs: anthers light snuff-color, obtuse, two or three lines long : capsules narrowly oblong with thick, obtuse angles.

This peculiar Mariposa stands near C. Weedii and C. clavatus, resembling the former in its corm, leaves, etc., and the latter in its markings, pubescence, etc., but it is abundantly distinguished by its short, comparatively narrow, often bifid petals, etc.

On dry, stony hills near San Luis Obispo, Cal., on the premises of Dr. W. W. Hays, May 25, 1886. Collected in 1882 further eastward by Miss Georgie Hays, Miss Dalidet, Mrs. R. W. Summers and others.—J. G. LEMMON.

A rare fern.—Mr. John Spence, of Santa Barbara, recently discovered a rare fern in the high mountain regions of Santa Barbara county, which appears to be a South American Notholæna, *N. tenera* Gill., not heretofore reported in the United States except in a single locality in Southern Utah. In form and manner of growth it resembles *Notholæna nivea* Desv. (See Hooker & Baker's "Synopsis Filicum" p. 374.) As N. nivea is placed under the subdivision Cincinalis, characterized by the fronds being coated with white or yellow powder, and these specimens show no trace of such powder, they must be placed under the subdivision Eunothochlæna, in which the fronds are not farinose beneath, and under the specific name given above, a fern found in the Andes of Bolivia and Chili, which the best authorities (see Sir J. W. Hooker's Species Filicum, vol. 5. p. 112) state is a very doubtfully distinct species from *N. nivea*, from which it differs only in the absence of the powder beneath.

Prof. D. C. Eaton in his "Ferns of North America" figures N. tenera found in Southern Utah, but the plate is too poor to give a correct idea of the species, and the author expresses a doubt as to the correctness of the determination.

On comparing Mr. Spence's specimen with a specimen of N. nivea in my collection (also a South American species, not reported in the United States until found by Prof. Lemmon in Arizona in 1883), I find the resemblance complete, except that the Californian specimen shows no trace of powder on the under side of the frond, which corresponds with the N. tenera of H. & B. The pinnæ being less distant may be the result of climatic differences.

In the absence of further evidence Mr. Spence's discovery may, with reasonable certainty, be called Notholæna tenera.

Mr. Spence also found a rare form of Aspidium munitum in the same locality.—LORENZO G. YATES, *Santa Barbara, Calif.*

William S. Clark, Ph. D.—William Smith Clark, the well-known botanist and educator of Massachusetts, died at his home in Amherst, Mass., March 9th, 1886.

He was the son of Dr. Atherton Clark, and was born in Ashfield, Mass., July 31, 1826. He fitted for college at Williston Seminary, East Hampton, Mass., and entered Amherst College in 1844, graduating with the title of A. B., 1848. For two years after graduating he taught the natural sciences in Willis-